Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	18	(US-20020005600-$ or US-20020045672-$ or US-20020058718-$ or US-20030071383-$).did. or (US-5639473-$ or US-5763416-$ or US-5942496-$ or US-6103255-$ or US-6281256-$ or US-6281257-$ or US-6511650-$ or US-6562374-$ or US-6642363-$ or US-6797738-$). did. or (WO-9844027-$ or WO-9958656-$).did. or (WO-9812228-$ or WO-9958656-$). did.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2004/12/16 13:58
S1	1216	alginate porous	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	SAME	ON	2004/12/15 15:17
S2	133	porous gell	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	SAME	ON	2004/12/15 14:05
S3	1	S2 and DNA	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	SAME	ON	2004/12/15 14:05
S4	5	shea NEAR lonnie	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/12/15 14:22
S5	16	BONADIO NEAR jeffrey	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/12/15 14:23
S6	79	mooney NEAR david	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/12/15 14:24
S7	5	(S4 S5 S6) AND S1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/12/15 14:28

S8	27	(S4 S5 S6) AND porous	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2004/12/15 14:28
S9	59	(US-20020045672-$ or US-20020064559-$).did. or (US-4666707-$ or US-4708861-$ or US-4933185-$ or US-4990601-$ or US-5139945-$ or US-5144016-$ or US-5409703-$ or US-5422377-$ or US-5444160-$ or US-5460957-$ or US-5498421-$ or US-5514378-$ or US-5516666-$ or US-5542935-$ or US-5578314-$ or US-5580575-$ or US-5639473-$ or US-5716404-$ or US-5763416-$ or US-5770222-$ or US-5853752-$ or US-5874100-$ or US-5876742-$ or US-5885829-$ or US-5942496-$ or US-5965125-$). did. or (US-5980508-$ or US-6022556-$ or US-6071495-$ or US-6103255-$ or US-6121441-$ or US-6281015-$ or US-6281256-$ or US-6281257-$ or US-6395307-$ or US-6462029-$ or US-6511650-$ or US-6541022-$ or US-6562374-$ or US-6797738-$ or US-6642363-$). did. or (FR-2753903-$ or US-5716404-$ or US-5885829-$ or WO-9618424-$ or WO-9715195-$ or WO-9745533-$ or WO-9812228-$ or WO-9844027-$ or WO-9851710-$ or WO-9925396-$ or WO-9958656-$ or WO-9618411-$).did. or (JP-09033529-$).did. or (EP-288494-$ or WO-9428874-$ or WO-9812228-$ or WO-9958134-$ or WO-9958656-$).did.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2004/12/15 15:07
S10	34	Ma NEAR Peter	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2004/12/15 15:08
S11	56469	alginate	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	SAME	ON	2004/12/15 15:18
S12	4513	alginate.clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	SAME	ON	2004/12/15 15:19

S13	1004	S12 and porous	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	SAME	ON	2004/12/15 15:20
S14	8	S13 and (cellular ADJ interaction)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	SAME	ON	2004/12/15 15:20

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=> d his

     (FILE 'HOME' ENTERED AT 13:22:29 ON 16 DEC 2004)

     FILE 'MEDLINE, CANCERLIT, SCISEARCH, CAPLUS, MEDICONF' ENTERED AT
     13:22:45 ON 16 DEC 2004
L1       2597710 S ALGINATE OR PLGA OR MATRIX OR POLYMER OR HYDROGEL
L2       2828463 S PORE OR POROUS OR GAS OR FOAM? OR LEACH?
L3       2844035 S DNA OR NUCLEOTIDE? OR POLYNUCLEOTIDE? OR NUCLEIC(3W)ACID
L4          1442 S L1 (L) L2 (L) L3
L5           655 S L4 AND PY<=1998
L6           405 DUP REM L5 (250 DUPLICATES REMOVED)
L7       1120586 S LIGAND OR RDG OR FIBRONECTIN OR VIRONECTIN OR LAMININ? OR COL
L8            26 S L6 (L) L7
L9            26 FOCUS L8 1-
L10           11 S L6 AND (ADHESION OR ATTACHMANT OR PROTEOGLYCAN)
L11           11 FOCUS L10 1-
L12           11 S L6 AND LIGAND?
                 E SHEA LONNIE/AU
L13           34 S E4
L14            5 S E3
L15           39 S L13 OR L14
                 E BONADIO JEFFREY/AU
L16           63 S E3
L17           10 S E4
L18           73 S L16 OR L17
L19            6 S L15 AND L4
L20            0 S L18 AND L4
L21           34 S L18 AND L1
L22            4 DUP REM L19 (2 DUPLICATES REMOVED)

=> d an ti so au ab pi l22 1-4

L22  ANSWER 1 OF 4     MEDLINE on STN                    DUPLICATE 1
AN   2003045789     MEDLINE
TI   Controllable delivery of non-viral DNA from porous scaffolds.
SO   Journal of controlled release : official journal of the Controlled Release
     Society, (2003 Jan 9) 86 (1) 157-68.
     Journal code: 8607908. ISSN: 0168-3659.
AU   Jang Jae-Hyung; Shea Lonnie D
AB   The inductive approach to tissue engineering combines three-dimensional
     porous scaffolds with drug delivery to direct the action of
     progenitor cells into a functional tissue.  We present an approach to
     fabricate scaffolds capable of controlled, sustained delivery by the
     assembly and subsequent fusion of drug-loaded microspheres using a
     gas foaming/particulate leaching process.
     DNA-loaded microspheres were fabricated from the copolymers of
     lactide and glycolide (PLG) using a cryogenic double emulsion process.
     Microspheres were fabricated in four populations with mean diameters
     ranging from 12.3 microm to 92.5 microm.  Scaffolds fabricated by fusion
     of these microspheres had an interconnected open pore structure,
     maintained DNA integrity, and exhibited sustained release for 21
     days.  Control over the release was obtained through manipulating the
     properties of the polymer, microspheres, and the foaming
     process.  Decreasing the microsphere diameter or the molecular weight of
     the polymer used for microsphere fabrication led to increased
     rates of release from the porous scaffold.  Additionally,
     increasing the pressure of CO(2) increased the DNA release rate.
     The ability to create porous polymer scaffolds capable
     of controlled release rates may provide a means to enhance and regulate
     gene transfer within a developing tissue, which will increase their
     utility in tissue engineering.

L22  ANSWER 2 OF 4     MEDLINE on STN                    DUPLICATE 2
AN   2001697194     MEDLINE
TI   Drug-releasing scaffolds fabricated from drug-loaded microspheres.
SO   Journal of biomedical materials research, (2002 Feb) 59 (2) 349-56.
     Journal code: 0112726. ISSN: 0021-9304.
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AU Nof Moriah; **Shea Lonnie D**
AB Biodegradable scaffolds serve a central role in many strategies for engineering tissue replacements or in guiding tissue regeneration. Typically, these scaffolds function to create and maintain a space and to provide a support for cell adhesion. However, these scaffolds also can serve as vehicles for the delivery of bioactive factors (e.g., protein or **DNA**) in order to manipulate cellular processes within the scaffold microenvironment. This study presents a novel approach to fabricate tissue-engineering scaffolds capable of sustained drug delivery whereby drug-loaded microspheres are fabricated into structures with controlled porosity. A double-emulsion process was used to fabricate microspheres with encapsulated **DNA** that retained its integrity and was released from the microspheres within 24 h. These **DNA**-loaded microspheres subsequently were formed into a nonporous disk or an interconnected open-**pore** scaffold (>94% porosity) via a **gas-foaming** process. The disks and scaffolds exhibited sustained plasmid release for at least 21 days and had minimal burst during the initial phase of release. This approach of assembling drug-loaded microspheres into **porous** and nonporous structures may find great utility in the fabrication of synthetic **matrices** that direct tissue formation.
 J Biomed Mater Res 59: 349-356, 2002

L22 ANSWER 3 OF 4 CAPLUS
AN 1999:736893 CAPLUS
DN 131:332976
TI Sustained **dna** delivery from structural **porous** **matrices** for gene therapy applications with special emphasis is on bone formation and regeneration
SO PCT Int. Appl., 144 pp.
CODEN: PIXXD2
IN **Shea, Lonnie D.**; Bonadido, Jeffrey; Mooney, David J.
AB Disclosed are particular 3-dimensional structural **matrixes** containing **DNA** and their use in the prolonged release of **DNA** in various biol. environments. The structural **matrix** is a **porous polymer** [**PLGA**]-based containing **pores** formed by **gas foaming** involving inert **gases** (CO2) and **leaching** out of a water-soluble particulate (salt, NACL, sugar, glucose, sucrose, mannitol) when exposed to body fluids. The admixt. is compression molded into a selected size and shape prior to executing the **gas foaming** process. The structural **matrix** may also be an **alginate** or modified **alginate matrix**. This structural **matrix** is a biocompatible or biodegradable **matrix**. It may also be a lactic acid **polymer**, glycolic acid **polymer** or lactic acid/glycolic acid copolymer **matrix**. At least part of this **matrix** may be comprised of lactic acid/glycolic acid (**PLGA**) copolymer **matrix**. The structural **matrix** may be modified where one side section is bonded to one cell interaction mol. such as cell adhesion mols., cell attachment peptides, proteoglycan attachment peptide sequences, proteoglycans, cell adhesion polysaccharides, growth factors, cell adhesion enzymes, RGD peptide, fibronectin, vitronectin, Laminin A, Laminin B1, Laminin B2, collagen 1 and thrombospondin. The **DNA-matrix** materials are created such that they maintain a defined space, allowing cellular migration, transfection and proliferation to occur in a controlled manner. Such **DNA**-containing structural **matrixes** are thus particularly useful in in vivo cell transfection and gene expression in the context of gene therapy. This may encode a protein for stimulating bone progenitors or wound healing in fibroblast or in tissue or organ regeneration or transplantation or an antigen for immunity or cytotoxic or apoptosis-inducing protein or a transcription factor or elongation factor or cell cycle control protein or kinase or phosphatase or **DNA** repair protein or oncogene or tumor suppressor or angiogenic protein or anti-angiogenic protein or immune response stimulating protein or cell surface receptor or accessory signaling mol. or transport protein or anti-bacterial or anti-viral protein or hormone or neurotransmitter or growth factor or growth factor receptor or interferon or interleukin or

chemokine or cytokine or colony stimulating factor or chemotactic factor protein of growth hormone or parathyroid hormone or PTH1-34 polypeptide or bone morphogenic protein or BMP-2A or BMP-2B or BMP-3 or BMP-4 or BMP-5 or BMP-6 or BMP-7 or BMP-8 or TGF-α or TGF-β1 or TGF-β2 or latent TGFβ binding protein or activin/inhibin protein or FGF or GMCSF or EGF or PDGF or insulin-like growth factor or leukemia inhibitory factor. This method allows for the use in gene transfer to cells within a tissue site and in manufacture of a medicament for gene therapy. Implantable medical devices comprising this gene-**matrix** are described. The release of **nucleic acids** from the **matrix** is controlled by diffusion. This method also applies to cancer therapy or treating viral infection.

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9958656	A2	19991118	WO 1999-US10330	19990512
	WO 9958656	A3	20000106		
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BJ, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 9938986	A1	19991129	AU 1999-38986	19990512

L22 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:211185 CAPLUS
DN 131:23380
TI Protein and plasmid DNA delivery from tissue engineering matrixes
SO Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1999), 40(1), 273-274
CODEN: ACPPAY; ISSN: 0032-3934
AU Peters, Martin C.; **Shea, Lonnie D.**; Mooney, David J.
AB A **polymer** processing approach utilizing high-pressure **gas foaming** has been found to provide a means for efficient growth factor or plasmid **DNA** incorporation into **polymers** and a controlled and sustained delivery of material for times ranging from 14 days to more than 30 days. VEGF, FGF-2, EGF, and plasmid encoding platelet derived growth factor (PDGF) have been successfully delivered from **matrixes**. VEGF has been released and shown biol. active for 2 wk in vitro, while PDGF plasmid delivery has been shown capable of up-regulating blood vessel number and area for 4 wk in a Lewis rat model. Thsi system represents the first demonstration of a controlled and sustained release of plasmid **DNA** from a **polymer matrix**. With successful strategies to deliver pro-angiogenic factors to a localized site for an extended period of time, it is possible to increase the vasculature present in the area of cell transplantation. This enhancement of vasculature in and around a **matrix** will increase the supply of nutrients available to the cells, thus promoting their initial engraftment, long-term survival, and eventual development into a functional tissue.

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